Department of Defense

DIRECTIVE

NUMBER 3150.1

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USDR&E

SUBJECT: Joint Nuclear Weapons Development Studies and Engineering Projects

References: (a) DoD Directive 5030.2, "Joint AEC-DoD Nuclear Weapons Conceptual/Feasibility Studies and Development Projects," January 4, 1974 (hereby canceled)
(b) Public Law 83-703, "The Atomic Energy Act of 1954," as amended
(c) DoD Directive 5148.2, "Assistant to the Secretary of Defense (Atomic Energy)," August 10, 1978
(d) through (k), see enclosure 1

1. PURPOSE

1.1. This Directive replaces reference (a) and updates policy, procedures, and responsibilities for conducting joint Department of Energy (DoE)-DoD nuclear weapons concept definition studies (Phase I), feasibility studies (Phase 2), and design definition and cost studies (Phase 2A); for handling nuclear weapon development engineering projects (Phase 3); and for developing and transmitting nuclear weapon military characteristics (NCs) and stockpile-to-target sequence (STS) to the DoE.

1.2. It implements reference (b) insofar as it deals with the development of nuclear weapons.

2. APPLICABILITY

This Directive applies to the Office of the Secretary of Defense (OSD), the Military Departments, the Organization of the Joint Chiefs of Staff (OJCS), and the Defense Nuclear Agency (DNA) (hereafter referred to collectively as "DoD Components").

3. POLICY

The Department of Defense and the DoE have complementary responsibilities based on law and formal agreements (see enclosure 2) to provide a safe, secure, and militarily effective nuclear weapons stockpile. Concept definition and feasibility studies and development engineering projects shall be coordinated fully and shall consider total weapon system cost and performance in establishing military requirements and design objectives.

4. RESPONSIBILITIES

4.1. The Under Secretary of Defense for Research and Engineering (USDR&E) and the Chair, Military Liaison Committee (NLC), who also shall serve as the Assistant to the Secretary of Defense (Atomic Energy) (ATSD(AE)) (DoD Directive 5148.2, reference (c)), shall:

4.1.1. Have overall responsibility for executing DoD nuclear weapons development requirements under Pub. L. 83-703, the 1953 Atomic Energy Commission (AEC)-DoD Agreement, the 1977 Supplement to that Agreement, and the DoD-DoE Memorandum of Understanding (references (b), (d), (e), and (f)).

4.1.2. Issue a DoD Instruction to supplement this Directive that shall include specific details, in accordance with DoD acquisition policies (DoD Directive 5000.1, reference (g)), concerning:

4.1.2.1. Phases 2, 2A, and 3 requests.

4.1.2.2. Responsibilities and procedures for DoD project officers and design review and acceptance groups.

4.1.2.3. Assignment of responsibility for revision, coordination, and maintenance of specific implementing documents.

4.2. Heads of DoD Components shall comply with this Directive.

5. PROCEDURES

5.1. Concept Definition Studies (Phase 1)

5.1.1. Any DoD Component (with the cooperation of other DoD Components and the DoE, as desired) or the DoE may conduct a Phase 1 study to define a weapon concept and to help the DoD Component concerned and the USDR&E decide whether to proceed with a joint Phase 2 study.

5.1.2. If the Phase 1 study foresees the modification of an existing nuclear weapon or the development of a new nuclear weapon, the DoD Component concerned shall ask the DoE to examine the practicability of at least that portion of the concept.

5.2. Joint Feasibility Studies (Phase 2)

5.2.1. Any Military Department may submit to the USDR&E for approval a request for a joint Phase 2 study.

5.2.2. If the request is approved, the USDR&E shall designate a Military Department as the "cognizant Military Department" to chair a joint Phase 2 study and shall request formally, through the MLC, that the DoE participate.

5.2.3. In addition to the joint Phase 2 report, the DoE shall be requested to produce a major impact report (MIR) identifying those aspects of the development, design, testing, and production processes perceived as likely determining factors in meeting program objectives.

5.2.4. The Military Departments shall review annually Phase 2 studies that have not progressed to Phase 2A or Phase 3 and shall recommend to the USDR&E the reopening or cancelation of such Phase 2 studies or initiation of Phase 2A or Phase 3 if either is appropriate. The USDR&E shall inform the DoE through the MLC of any such changes.

5.3. Joint Design Definition and Cost Studies (Phase 2A)

5.3.1. After the completion of the Phase 2 report, and before a decision to request a Phase 3 project, the USDR&E also may request, through the MLC, that the DoE join the Department of Defense in forming a project officers group (POG) to conduct a Phase 2A study. The DoD request shall designate a Military Department to provide the lead project officer and shall include a projected date for the beginning of a Phase 3 project, a projected initial operation capability, and a proposed production schedule. The DoD Phase 2A request shall ask that the DoE identify information on costs, production schedules, options, and trade-offs, including those involving safety, security, survivability, and control features for the weapon system.

5.3.2. Cost information will be included in the weapon design and cost report (WDCR) provided by the DoE.

5.3.3. Additional information shall be provided in the minutes of the POG meetings or in separate reports, as appropriate.

5.4. Joint Nuclear Weapons Development Engineering Projects (Phase 3)

5.4.1. The Military Departments may transmit a request for a Phase 3 project to the USDR&E based on favorable evaluation of a Phase 2 or Phase 2A study after consultation with the Joint Staff of the OJCS. For those systems governed by the Defense Systems Acquisition Review Council (DSARC) process, this request shall comply with DoD Directive 5000.1 (reference (g)).

5.4.2. The USDR&E, in coordination with other OSD principal staff assistants having responsibilities relating to nuclear weapons programs, shall review Phase 3 requests and solicit the views of other DoD Components concerned. When joint DoE-DoD nuclear weapons development is determined appropriate, the USDR&E shall transmit a Phase 3 request to the DoE, through the MLC, requesting DoE participation. The USDR&E shall designate a Military Department to lead the project for the Department of Defense.

5.5. Nuclear Weapon Development Liaison with the DoE

5.5.1. Formal communication between the Department of Defense and the DoE shall be transmitted through the MLC for action in accordance with Pub. L. 83-703, the 1953 AEC-DoD Agreement, and DoD Directive 5148.1 (references (b), (d), and (h)).

5.5.2. The details of development projects and any subsequent design change shall be coordinated at the working level among the DoD Components concerned and between the Department of Defense and the DoE through formally designated project officers. The responsibility for coordination through designated project officers shall continue throughout the stockpile life of the warhead.

5.5.3. The cognizant Military Department shall:

5.5.3.1. Provide consolidated guidance to the DoE within the framework of, but not limited to, approved MCs and STS.

5.5.3.2. Conclude an agreement with the DoE on the division of responsibilities for the development project.

5.5.3.3. Assign a lead project officer for each nuclear weapon development project.

5.5.3.4. Submit inter-Service conflicts to the Chairman, JCS, and the USDR&E and submit DoD-DoE conflicts to the MLC for resolution.

5.5.4. Other Military Departments involved in a project shall assign project officers to be their spokesmen.

5.5.5. The DNA shall assign a nonvoting member to the POG for each nuclear weapon development project to provide the lead project officer with technical assistance and support, as required.

5.6. MCs and STS

5.6.1. The MCs state the performance requirements and physical characteristics for those parts of a nuclear weapon that are the sole responsibility of the DoE to design, develop, certify, and produce. MCs begin as a statement of desired DoD performance objectives and become design requirements only after formal DoE acceptance.

5.6.2. The STS supplements the MCs by describing the logistical and operational concepts for the weapon system and the resulting physical environments that the nuclear weapon can encounter. The STS is developed through an evolutionary process beginning in Phase 1 and is a "living" document that is reviewed continuously and revised as required throughout the life of a nuclear weapon project.

5.6.3. Preliminary draft MCs shall be included in the Phase 1 report for any Phase 1 study that expects the modification of an existing nuclear weapon or the development of a new nuclear weapon. These preliminary draft MCs may be partially in outline form and may indicate sections to be determined.

5.6.4. The cognizant Military Department shall prepare draft MCs and a draft STS and shall distribute them to all DoD Components concerned, the MLC, and the DoE during the Phase 2 study. Draft NCs and STS, together with any comments of the DoE or any DoD Component, shall be included in the Phase 2 report.

5.6.5. The draft MCs and STS, modified by the NLC as considered appropriate, shall be forwarded to the DoE with the request for a joint Phase 3 project.

5.6.6. Following DoE review of the draft MCs and draft STS and acceptance of the Phase 3 request, the MLC shall coordinate any modifications to the draft MCs necessary to formalize DoE acceptance. MLC-approved MCs shall be provided within 60 days following DoE acceptance of the Phase 3 request. The draft STS, with DoE comments, shall be returned to the cognizant Military Department through the chair, MLC.

5.6.7. Proposed changes to approved MCs shall be reviewed by the POG and shall be submitted to the MLC by the cognizant Military Department. Before approval, the MLC shall coordinate proposed changes to the MCs with the DoE and DoD Components concerned.

5.6.8. The DNA, acting in support of the MLC, shall publish and distribute all approved MCs and MLC-approved changes.

5.6.9. The cognizant Military Department shall forward the STS to the DoE and the chair, MLC, within 90 days following DoE acceptance of the Phase 3 request. Changes to the STS will be approved by the POG and will be published by the cognizant Military Department. The cognizant Military Department shall inform the MLC, before approval, of changes that may require significant additional resources or delay initial operational capability.

5.7. Reviews

5.7.1. The MLC shall review each program at least twice during Phase 3. These reviews shall consider the impact of the MCs and the STS on the design effort and the resources needed to meet various design requirements and goals. The reviews shall be held toward the end of the first year of Phase 3 and again near the end of Phase 3.

5.7.2. DoE-proposed nuclear warhead or bomb designs, provided in the form of preliminary, interim, and final development reports, shall be reviewed by a design review and acceptance group (DRAAG) composed of representatives of the Military Departments and chaired by the cognizant Military Department as prescribed in DoD Instruction 5030.55 (reference (i)). The DNA shall assign a nonvoting representative to the DRAAG to provide technical assistance and support.

5.7.3. The reviews shall determine whether the design complies with requirements specified in the approved MCs and the STS. The findings and recommendations of the DRAAG shall be submitted to the MLC by the cognizant Military Department for review and transmittal to the DoE.

5.7.4. The DRAAG review of a final development report shall provide the basis for appropriate standardization action by the MLC, including formal notification to the DoE that the design is acceptable to the Department of Defense in accordance with the 1953 AEC-DoD Agreement (reference (d)).

6. EFFECTIVE DATE AND IMPLEMENTATION

This Directive is effective immediately. Forward four copies of implementing documents to the Under Secretary of Defense for Research and Engineering within 120 days.

PAUL THAYER
Deputy Secretary of Defense

Enclosures - 2

E1. References, continued
E2. Basis for the Policy

E1. ENCLOSURE 1

REFERENCES, (continued)

(d) Atomic Energy Commission, "An Agreement Between the AEC and the DoD for the Development, Production, and Standardization of Atomic Weapons," March 21, 1953

(e) "Supplement to the 1953 Agreement for the Development, Production, and Standardization of Atomic Weapons Between U.S. Energy Research and Development Administration and Department of Defense," May 31, 1977

(f) "Memorandum of Understanding Between the Department of Defense and the Department of Energy on Objectives and Responsibilities for Joint Nuclear Weapon Activities," January 17, 1983

(g) DoD Directive 5000.1, "Major System Acquisitions," March 29, 1982

(h) DoD Directive 5148.1, "Military Liaison Committee to the Department of Energy," January 24, 1979

(i) DoD Instruction 5030.55, "Joint AEC-DoD Nuclear Weapons Development Procedures," January 21, 1974

(j) Public Law 93-438, "The Energy Reorganization Act of 1974"

(k) Public Law 95-91, "The Department of Energy Organization Act"

E2. ENCLOSURE 2

BASIS FOR THE POLICY

E2.1.1. Section 91 of the Atomic Energy Act of 1954, Pub. L. 83-703 (reference (b)), authorized the AEC to "conduct experiments and do research and development work in the military application of atomic energy"; and to "engage in the production of atomic weapons or atomic weapons parts, except that such activities shall be carried out only to the extent that the express consent and direction of the President of the United States has been obtained, which consent and direction shall be obtained at least once each year."

E2.1.2. Section 91 further provides that the President may direct the Commission to "deliver such quantities of special nuclear material or atomic weapons to the Department of Defense for such use as he deems necessary in the interest of national defense . . . or authorize the Department of Defense to manufacture, produce, or acquire any atomic weapon or utilization facility for military purposes."

E2.1.3. In 1974, the AEC was abolished (Pub. L. 93-438, reference (j)), and all weapons-related functions of the Commission were transferred to the Energy Research and Development Administration (ERDA). In 1978, the DoE was established, and the nuclear weapon research, development, testing, and production functions of ERDA were transferred to the DoE (Pub.L. 95-91, reference (k)). Reference (b) remains the charter for DoD-DoE nuclear weapons studies and development projects.

E2.1.4. Reference (b) also established the MLC, headed by a chair appointed by the President with the advice and consent of the Senate and composed of an equal number of representatives from each Military Department. The Act provides that:

E2.1.4.1. The DoE "shall advise and consult with the Department of Defense through the Committee, on all atomic energy matters which the Department of Defense deems to relate to military applications of atomic weapons or atomic energy including the development, manufacture, use, and storage of atomic weapons. . ."

E2.1.4.2. The Department of Defense "through the Committee, shall keep the Commission [DoE] fully and currently informed on all matters within the Department of Defense which the Commission [DoE] deems to relate to the development or application of atomic energy."

E2.1.5. DoD Directive 5148.1 (reference (h)) defines the functional authority of

the MLC and its relationship with the DoD Components and with the DoE.

E2.1.6. DoD Directive 5148.2 (reference (c)) establishes the responsibilities and functions of the ATSD(AE) who also serves as the chair of the MLC.

E2.1.7. "An Agreement Between the AEC and the DoD for the Development, Production, and Standardization of Atomic Weapons" (reference (d)) defines specific responsibilities of the AEC (now DoE) and the Department of Defense to initiate and execute nuclear weapon development projects. The agreement establishes a phased procedure whereby the DoE and the Department of Defense pursue their joint and individual responsibilities in full cooperation. The functions, responsibilities, and procedures established by the agreement are based on the following precepts:

E2.1.7.1. That unless otherwise provided by law or by agreement between the DoE and the Department of Defense, the development and production of nuclear weapons systems are the complementary responsibilities of the DoE and the Department of Defense.

E2.1.7.2. That the development and production of nuclear systems are primary functions of the DoE.

E2.1.7.3. That the division of responsibilities for the development and production of nuclear weapons, exclusive of the nuclear systems, shall be by joint agreement on each weapon or class of weapons between the DoE and the Department of Defense.

E2.1.7.4. That the determination of the military characteristics, suitability, and acceptability (standardization) of the nuclear weapon is a primary function of the Department of Defense.

E2.1.8. The "Supplement to the 1953 Agreement for the Development, Production, and Standardization of Atomic Weapons Between U.S. Energy Research and Development Administration and Department of Defense" (reference (e)) delineates the responsibilities of the DoE and the Department of Defense during Phase 2 activities for investigating weapons design and military characteristic trade-offs, identifying baseline designs, determining the development schedule, and reporting nuclear weapon costs and other resource requirements.

E2.1.9. The "Memorandum of Understanding Between the Department of Defense and the Department of Energy on Objectives and Responsibilities for Joint Nuclear Weapon Activities" (reference (f)) supplements previous agreements to

reaffirm mutual objectives; delineates responsibilities; implements measures to improve nuclear weapon stockpile planning and acquisition; and ensures continued high-level attention to nuclear weapon safety, security, control, and classification. The basic joint DoE-DoD objectives continue to be to:

E2.1.9.1. Provide a safe, secure, and militarily effective nuclear weapon stockpile.

E2.1.9.2. Conduct an aggressive research and development effort to ensure technological superiority and to meet future national security needs.